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GB 1585318 US 4218155  
GB 1474734 US 3958571  
GB 1016053

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A4K  
Selected US specifications from IPC sub-classes A45D  
A61M

## (54) Liquid dispenser having an absorbent applicator tip

(57) A dispensing apparatus, e.g. for medicines or cosmetics, comprises a generally tubular container (11) which has a body portion (14) and a substantially more narrow tip portion (15). The container is adapted to be filled with liquid (13). The tip portion is easily rupturable from the container body portion to allow the egress of liquid from the container. The apparatus also includes an absorbent swab member (12) covering the tip portion of the container and the adjacent body portion so as to be adapted to receive liquid from the container body when the tip portion is ruptured.

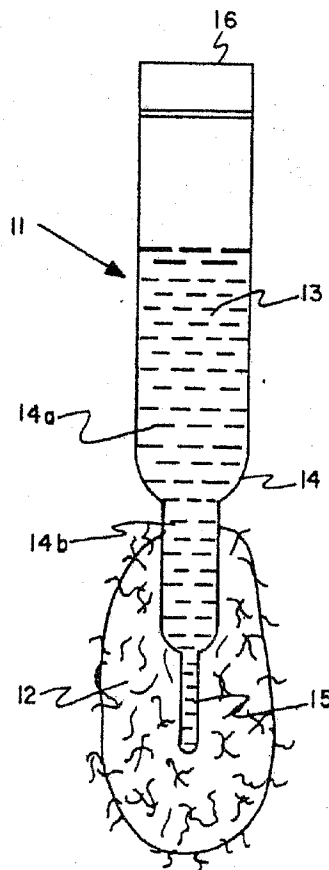
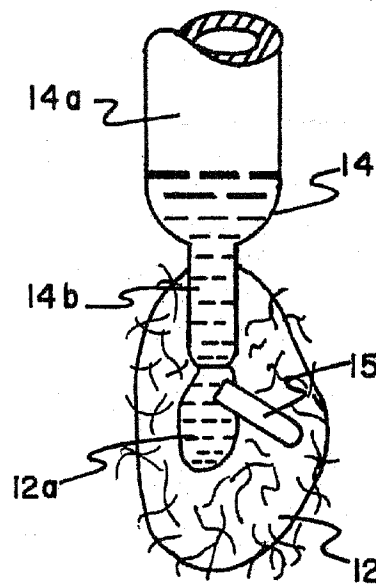
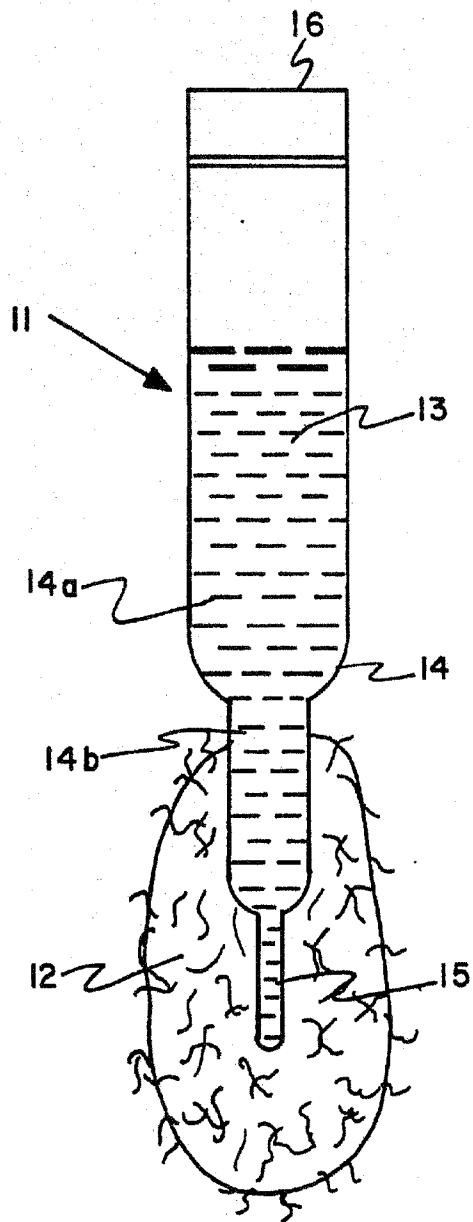


FIG. 1

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## SPECIFICATION

**Liquid dispenser having an absorbent applicator tip**

This invention relates to a liquid dispenser having  
 5 an absorbent applicator tip, e.g. a cotton swab tip.  
 Such a container may be used for dispensing  
 various liquid materials, e.g. medicines or  
 cosmetics. As used herein, the term "liquid" refers  
 to various liquid materials capable of flow from such  
 10 a dispensing device including those having a lotion-  
 like consistency.

Various devices have been proposed for  
 dispensing liquid from a rupturable container to an  
 absorbent applicator tip, e.g. a cotton swab tip.

15 For example, in U.S. Patent No. 3,519,364 a  
 tubular container is described and shown in Fig. 6  
 which uses an intermediate sealing plug to contain  
 liquid at the lower end of a tubular container having  
 an enlarged cross-sectional bore at its tip which is  
 20 encased in a wad of batt or other fibrous material.  
 The thickness of the wall section of the tubular  
 container is thinner in the enlarged cross-sectional  
 bore portion as compared to the thickness of the  
 wall at other portions of the tubular container. This  
 25 thinner cross-section in the tip portion of the  
 container allows for its ready fracturing when  
 pressed against a hard unyielding surface. The fluid  
 is then free to flow from the container into the  
 fibrous material surrounding the ruptured tip.

30 U.S. Patent No. 4,430,013 uses a different  
 approach in order to form a disposable swab article.  
 Figs. 10 and 11 thereof illustrate a container encased  
 in a foam applicator tip. The container is formed on  
 one side from flat sheet stock having a domed  
 35 receptacle on one surface. A cut or scored line is  
 formed in the flat sheet stock to allow for rupture of  
 the receptacle by bending of the flat sheet stock  
 back onto itself as illustrated in Fig. 11. A somewhat  
 similar approach is used in U.K. Patent No.

40 4,218,155 which in Fig. 3 illustrates a receptacle  
 having a flat lower face joined to an upper face of  
 trough shape. A rupture initiation line is provided at  
 the outlet end of the thus-formed stick-like  
 receptacles preferably on each of the faces of the  
 45 article. U.S. Patent No. 3,757,782 illustrates the  
 encasing of a tube member at either end in cotton or  
 equivalent swab members. Either end of the tube  
 contains a rupturable disc or membrane which is  
 readily rupturable under internal liquid pressure  
 50 formed if the tube member is pressed.

U.S. Patent No. 3,958,571 describes a swab  
 applicator comprising an elongated hollow tube  
 which is open at one end and normally closed at the  
 opposite end and which contains a solution which is  
 55 adapted to be dispensed from the tube. A swab of  
 absorbent material is secured around the open end,  
 and the opposite end is provided with means to  
 open the end to permit the solution to flow by  
 gravity into the swab.

60 The present invention relates to a dispensing  
 apparatus which comprises a generally tubular  
 container body portion which is adapted to hold a  
 liquid to be dispensed from the container, the  
 container body portion terminating in a tip portion  
 65 having a more narrow cross-sectional area than the

cross-sectional area of the container body portion.  
 The tip portion is adapted to be ruptured from the  
 container body portion to allow egress of liquid  
 from the container. An absorbent swab member  
 70 covers the top portion of the container and the  
 adjacent container body portion so as to be adapted  
 to receive liquid from the container body when the  
 tip portion is ruptured. The present dispensing  
 apparatus differs from the applicator disclosed in  
 75 U.S. Patent No. 3,519,364 since the container held in  
 the absorbent swab has a tip of more narrow cross-  
 sectional area than the main portion of the  
 container, but of substantially the same thickness  
 rather than being of greater cross-sectional area  
 80 with a thinned wall. The present dispensing  
 apparatus is also unlike the disposable swab article  
 disclosed in U.S. Patent No. 4,430,013 since the  
 entire container is of generally tubular shape rather  
 than having a component formed of flat sheet  
 85 material. Also, no score line is needed at the  
 junction point of the tip and container body of the  
 present dispenser such as is required in the article of  
 the latter disclosure.

Referring to the accompanying illustrative  
 90 drawings:

Fig. 1 is a side view showing the dispensing  
 apparatus in accordance with the present invention  
 prior to breaking of the tip portion from the  
 container body; and

95 Fig. 2 is a fragmentary side view showing the  
 present dispensing apparatus after the tip portion  
 has been broken from the container body and liquid  
 has been allowed to become absorbed by the swab  
 material.

100 In general terms, the present dispensing  
 apparatus illustrated in Fig. 1 comprises a generally  
 tubular container 11 and an absorbent swab  
 material 12 over the tip of the container. The  
 container 11 is adapted to hold liquid 13 which is  
 105 intended to be dispensed from the container into the  
 swab material as will be described in greater detail  
 below. Various types of liquid may be held in  
 container 11. For example, cosmetics and medicines  
 are intended to be within the scope of the present  
 110 invention.

The container 11 contains a container body  
 portion 14 in which the bulk of the liquid is held. The  
 container body 14 is appropriately sealed at one end  
 16. Its other end communicates with a substantially  
 115 narrower tip portion 15. This tip portion may be  
 easily ruptured by pressing of that end of the article  
 against a relatively hard, unyielding surface.

Fig. 2 illustrates the configuration of the  
 dispensing apparatus according to the present  
 invention after the tip 15 has been broken from  
 container body 14 and a portion of liquid 12a has  
 been allowed to enter the interior of absorbent swab  
 12. In a preferred embodiment, the container body  
 14 is divided into a large container body reservoir  
 125 14a which terminates in a narrower capillary section  
 14b. The capillary section 14b is of greater cross-  
 sectional area than the tip portion 15, but is narrow  
 enough to allow for retention of liquid 13 within it by  
 means of capillary action. If the container 14 is  
 130 formed of a plastic material which is somewhat

deformable, squeezing of the container body reservoir portion 14a will dispense liquid 12a from the capillary portion 14b in a drop by drop fashion assuming appropriate dimensioning of the diameter of portion 14b (e.g., a diameter of about 0.25 cm) taking into account the characteristics of the liquid to be held therein. In this manner the liquid may be dispensed into the swab gradually to prevent its over-saturation.

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#### CLAIMS

1. A liquid dispensing apparatus which comprises:

- 15 (a) a generally tubular container body portion adapted to hold a liquid to be dispensed from the container, the container body portion terminating in a tip portion having a more narrow cross-sectional area than the cross-sectional area of the container body portion and being adapted to be ruptured from the container body portion to allow egress of liquid

from the container; and

- 25 (b) an absorbent swab member covering the tip portion of the container and the adjacent container body portion so as being adapted to receive liquid from the container body when the tip portion is ruptured.

2. An apparatus as claimed in claim 1 wherein the container body (a) consists of a reservoir which terminates in a more narrow capillary section which in turn terminates in a more narrow capillary section which in turn terminates in a still more narrow tip portion.

3. An apparatus as claimed in claim 1 or claim 2 wherein the swab member is formed of cotton.

35 4. An apparatus as claimed in any of claims 1 to 3 wherein portion (A) is formed of plastic.

5. An apparatus as claimed in claim 1 substantially as herein described with particular reference to the accompanying illustrative drawings.